

**Figure 1.** Glass Bead, S110-1, Sliding Contacts for Alumina Microstrip, and S110-3 Sliding Contacts for Duroid Microstrip

### 1. Tools And Materials

The following tools and materials will be helpful in installing the S110 Sliding Contacts on the pin of the glass bead.

Name	Vendor and Model/Part Number
Stereo Microscope	Bausch & Lomb 30 power
Parallel-Gap Welder and Pulse Bonder	Hughes Model WCW550 with VTA-90 Head
Solder, Indium #2	Indium Corp. of America
Jewelers Screwdriver	any
Tweezers	any

### 2. Fabrication Instructions

The sliding contacts slip over the pin of the glass bead and mate with the microcircuit as shown in Figure 2. The following is the recommended procedure for installing the sliding contacts and mating them with the microcircuit.

- a. Install the microcircuit and glass bead, as directed by the connector manufacturer.
- b. Check that the center pin in the glass bead is level with the top of the microcircuit  $\pm 0.051$  mm. If necessary, bend the pin to achieve this degree of levelness.
- c. Using the tweezers,
  - (1) Remove one of the S110 Sliding Contacts from the package.
  - (2) With the sleeve-end facing the pin on the glass bead, lay the S110 on the microcircuit near the bead.

- d. Using the tip of the jewelers screwdriver, gently press the S110 tab both down onto the microcircuit and in toward the glass bead.
- e. Position the sleeve as shown in Figure 2.

#### NOTE

For optimum RF performance, position the sliding contacts dynamically on the center pin as follows:

- Ensure that the tab makes good electrical contact with the microcircuit.
- Measure the SWR (return loss) of the connection.
- Slide the sleeve back and forth in small increments until the RF performance is optimized.

- f. If the sleeve on the S110 should become slightly malformed during the above operation, reform it using the tweezers. However, ensure that it still makes firm contact with the bead pin.
- g. Attach the tab on the S110 to the microcircuit by any of the following three methods:
  - *Soldering*: For thin-film microcircuits, use Indium solder to prevent the leaching of gold from the microcircuit. For other types, use any acceptable solder.

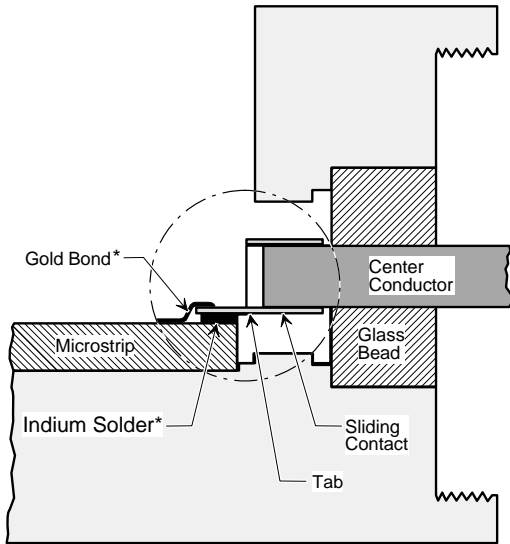
**CAUTION**

Use a minimum amount of solder to prevent the sleeve from becoming soldered to the pin.

- *TC Bonding*: Use ultrasonic or pulse bonding. Ensure that the tab firmly contacts the microcircuit for best RF performance.
- *Parallel-Gap Welding*: Use a tip that is approximately the same size as the tab (0.203 mm). Optimize the voltage, duration, and weight for a strong weld.

**NOTE**

Due to the method used to form the sliding contacts, there may be inconsistencies in the surface finish and the break-away area at the cylindrical end, which may have a jagged edge. These occurrences will not harm the performance of the sliding contact.



\* Alternate attachment techniques.

**Figure 2.** S110 Sliding Contacts Installation

